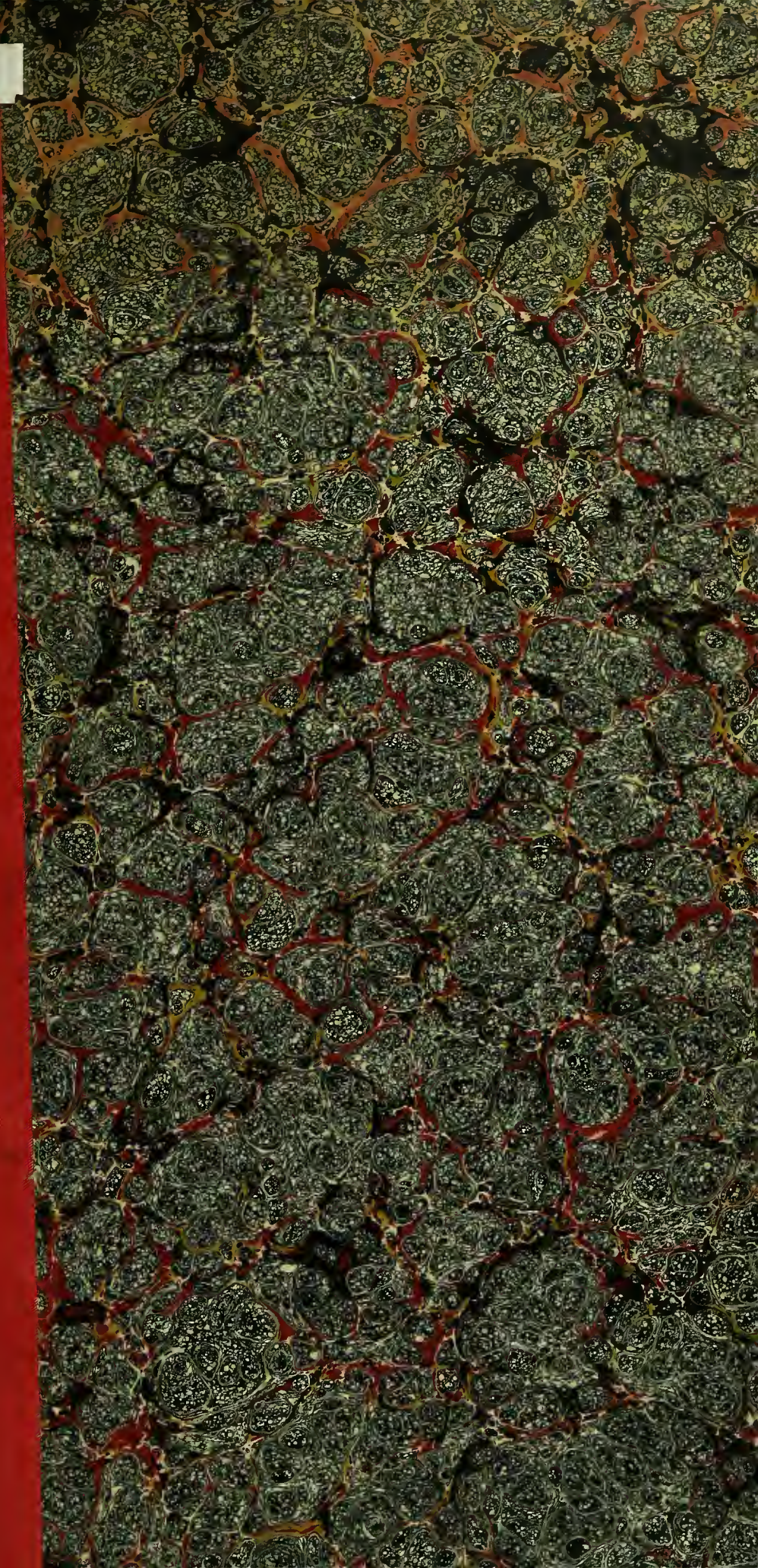


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MARK HANI - Races of the Peruvian Andes.




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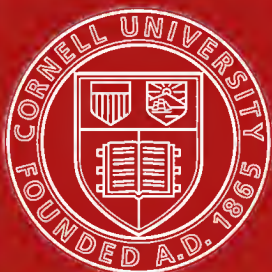
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Slip of Meeting of the Royal Geographical Society of 10th July, 1871.
 [Registered for transmission abroad, and published September 25th, 1871.]

ROYAL GEOGRAPHICAL SOCIETY.

SESSION 1870-71.

Extra-Sessional Meeting, Monday, 10th July, 1871.

MAJOR-GENERAL SIR HENRY C. RAWLINSON, K.C.B., PRESIDENT,
 in the Chair.

ELECTIONS.—*Sir William George Anderson, K.C.B.; George Tournay Biddulph, Esq.; J. H. L. Down, Esq., M.D.; William Elliot, Esq., C.E.; William Goodwin, Esq.; George Johnson, Esq., M.D.; the Right Hon. the Earl of Pembroke and Montgomery; A. H. Reed, Esq.; William George Thorpe, Esq.*

ACCESSIONS TO THE LIBRARY FROM JUNE 26TH TO JULY 9TH, 1871.
 —‘*Reisen in Ost-Afrika.*’ By Baron C. C. von der Decken. Vol. II. Purchased. ‘*Geological Survey of Canada, from 1866 to 1869.*’ By A. R. C. Selwyn. Montreal, 1870. Presented. ‘*Wilhelm Haidinger.*’ By M. A. Becker. Wien, 1871. Presented. ‘*Voyages dans la Basse et la Haute Egypte.*’ 1809. By V. Denon. Donor Admiral Sir W. Hall. ‘*Florida; its Climate, &c.*’ New York, 1870. Donor S. M. Holmes, Esq. ‘*Astronomical and Meteorological Observations, U. S. Naval Observatory, in 1868.*’ Washington, 1871. Donor Commodore B. F. Sands. ‘*The Industrial Progress of New South Wales.*’ Sydney, 1871. Donor Charles Cooper, Esq.

ACCESSIONS TO THE MAP-ROOM SINCE THE LAST MEETING OF JUNE 26TH, 1871. ‘*Atlas e Relatorio concernente a Exploração do Rio de S. Francisco, desde a cachoeira da Pirapóra até ao Oceano Atlantico, levantado por ordem do governo de S. M. I. Dom Pedro II. Pelo Engenheiro Civil, Henrique Guilherme Fernando Halfeld, em 1852, 1853, e 1854. Rio de Janeiro, 1860.*’——‘*Atlas do Imperio do Brazil comprehendendo as respectivas divisões, administrativas, ecclesiasticas, eleitoraes, e judiciaria dedicado a sua Magestade o Imperador o Senhor D. Pedro II., destinado á Instrução Publica no Imperio com especialidade á dos Alumnos do Imperial Collegio de Pedro II., organizado por Candido Mendes de Almeida. Rio de Janeiro, 1868.*’——‘*Trabalhos Hydrographicos ao Norte do Brazil dirigidos pelo Capitão de Fragata d’ A. N. I. José da Costa Azevedo. Primeiros traços geraes da carta particular do Rio Amazonas no curso Brasileiro Levantada pelo S^r João Soares. Pinto Capitão-Tenente d’ A. N. I. Coadjuvado de Belem a Teffe’ pelo S^r Vincente Pereira Dias, Primeiro-Tenante do Corpo D’Engenheiros nos annos de 1862, a 1864.*’

This extra-Sessional Meeting having been called together by the Council in order to give His Majesty the Emperor of Brazil, who is one of the Honorary Members, an opportunity of attending a Meeting of the Society, the PRESIDENT opened the business by saying, that the Fellows of the Society were always glad to welcome any of their Honorary Members who might attend their evening meetings; but they were especially proud of an occasion like the present, when they were honoured by the presence of one whose connexion with the Society was owing not so much to his distinguished position among the sovereigns of the world, as to the earnestness and success with which, from congeniality of tastes and appreciation of the value of geographical pursuits, he had availed himself of his exalted position to advance the true interests of this branch of science. To enumerate the various ways in which the Emperor of Brazil had shown himself a true friend of geography,

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miles, with an average width between the sea-shore and the Amazonian forests of 300 miles. This vast tract comprises every variety of climate, and contains within its limits the most prolific tropical forests, valleys with the climate of Italy, a coast region resembling Sind or Egypt, temperate hill-sides and plateaux, bleak and chilling pasture-lands, and lofty peaks and ridges within the limits of eternal snow. In such a country, with such a variety of climates and products, and where communication is so difficult, the various nations appear to have gradually developed their capabilities in almost complete isolation, and much influenced by the circumstances which surrounded them, during a course of ages. The tribal divisions of the empire of the Yncas agree well with its leading physical aspects. They consist of six clearly-defined regions: four following the lines of the Cordilleras, one on the sea-coast, and the last in the eastern forests. The first is included in the old kingdom of Quito, having its southern termination at the knot of Loxa. The second reaches from the mountain mass of Loxa to the saddle which separates the drainage of the Huallaga and Ucayali basins, a distance of 450 miles, and comprises the Chincha-suyu division. The third, and most important region, is that which is drained by affluents of the Ucayali; it includes the home of the Imperial tribe, and I have, therefore, called it the Ynca division. The fourth comprises the basin of Lake Titicaca, and is known as the Collao. The fifth is the coast region, and extends along the shores of the Pacific from the bay of Guayaquil to the desert of Atacama,—a distance of 1200 miles. The sixth is that portion of the dense forest-covered region to the eastward of the Andes, which is peopled by emigrants from the mountains.

The Ynca region extends from the water-partings between the basins at the Huallaga and Ucayali at Cerro Pasco, to that between the basins of the Ucayali and Lake Titicaca, at the base of the famous Peak of Vilcañota,—a distance of 380 miles. It is enclosed between the maritime cordillera and the eastern Andes, and is entirely drained by the affluents of the Ucayali, except at one point, where it extends over the coast watershed. Every variety of climate is met with in this mountain region. Here Nature has worked on her grandest and most imposing scale. The scenery is glorious; the products of every zone are collected on one mountain-side; but the difficulties in the way of advancing civilization, caused by the mighty obstacles of Nature, are such as to tax man's ingenuity to the utmost. Humboldt has well observed, that "when enterprising races inhabit a land where the form of the ground presents to them difficulties on a grand scale, which they may conquer and overcome, the contest with Nature becomes a means of increasing their strength and power, as well as their courage." A country like this was well adapted for the cradle of an imperial race. It was inhabited by six aboriginal nations,—the Yncas, Canas, Quichuas, Chancas, Huancas, and Rucanas.

These nations were closely allied, and seem to have had a common origin. Inhabiting regions alike in all respects, their development depended on the same causes, and they had to encounter the same difficulties in their first advances towards civilization. In the pre-historic times there were, doubtless, many struggles for supremacy and leadership, until finally the Ynca nation achieved undisputed sway. The Ynca country, as defined by Garcilasso, was bounded on the west by the precipitous gorge of the Apurimac, and on the east by the Paucartambo river. North and south it extended along the valley of the Vilcamayu, which passed through its centre. It thus consisted of a rich and fertile central valley, enjoying an Italian climate, and yielding corn and fruit in abundance, and a mountainous tract on either side, with pastures and rugged heights. Cuzco is on the western highland, between the central valley and the Apurimac. This district is about 70 miles by 60 in extent.

The proper name for the people of this tract is Ynca. All the heads of families were called Yncas, and it was not until later times that the name was assumed as the special title of the royal family. Even then the headmen of this original cradle of the imperial race retained the name of Yncas, but it was pretended that the title had been conferred upon them as a great favour. The universal tradition among the people was that the Yncas first appeared nearly in the centre of the home district. Thus, as far as tradition can pierce into the past, their civilization was altogether of indigenous origin and growth. The general belief, both of rulers and people, was that the first Ynca was of native and local origin, and they had no knowledge of the appearance of any strangers more civilized than themselves. A contrary belief, that the Yncas came from Lake Titicaca, rests upon a story alleged by Garcilasso to have been told him when he was a child, and on a similar version, received, possibly from the same source, by Zarate and Acosta. As against the united testimony of every other authority, this Titicaca story must be rejected as unworthy of credence.

We thus come to the consideration of a people which had been established from pre-historic times in the districts round Cuzco, and had gradually developed an indigenous power and civilization until it commenced a career of conquest, and its dominions assumed imperial proportions. It is not the object of my paper to discuss the various interesting points relating to Ynca civilization; excepting so far as some of them will assist us to eliminate Ynca elements in the history of other tribes, and so to attain correct notions of their original condition. With that end, however, I have considered the nature of the religious belief, of some of the customs, and of the language of the Yncas, as well as the character of their architecture, and the progressive stages of their advance in the art of building.

These points require more time for their discussion than it is possible to devote to them on the present occasion; and it would be useless to refer to such conclusions as are likely to be disputed, without quoting the authorities on which they are based. It will be sufficient here to say, that the six nations of this central Andean region appear to have worked out their advances in civilization by separate roads, until increasing population brought them in contact with each other, when a struggle for supremacy ended in the mastery of the fittest—the Yncas. Being closely-allied branches of one family, speaking dialects of one language, they were soon welded together; and such people were sure, in the course of time, to overcome more distant tribes living in regions less favoured by Nature.

South of the Ynca region is that of the Collao, forming the basin of Lake Titicaca, which is about 300 miles long by about 150. It is bounded east and west by the mighty chains of the Andes and the coast cordillera, with the saddle of Vilcañota connecting the two ranges as its northern boundary, and with all the drainage from these surrounding mountains flowing into the great lake. The region thus enclosed averages 12,000 feet above the level of the sea, a hilly and broken plateau where no corn (save quinoa) will grow, and only yielding edible roots and coarse pasture for llamas and alpacas—a bleak and treeless series of unproductive plains and uplands. Such a country, differing so widely from the Ynca region, was not adapted for the development of indigenous civilization; and before the Ynca conquest it was inhabited by the rudest and most savage tribes in the Andes. Without timber, without corn, they dwelt in stone huts, tended their flocks, raised crops of *ocas* and *papas*, and engaged in incessant feuds. They were brave and warlike, but their only arms were slings and *bolos*, and they suffered much in encounters with the civilized soldiers of the Yncas. Their language was a rude

dialect of the Ynca or Quichua, containing a most imperfect system of numeration, few words to express abstract ideas, and none for many things which are indispensable in the first beginnings of civilized life. The Collao must have been conquered by the Yncas in very remote times, and they conferred incalculable benefits on the inhabitants by teaching them a cultivated language and the arts of civilized life. The aboriginal tribes of the Collao were the Collas, Lupacas, Pacajes, Carangas, Quillacas, Urus, and Collahuayas. I have discussed at some length, in my paper, the evidences of Ynca influence on the language and habits of these tribes, and have thus endeavoured, by separating all Ynca elements, to obtain a correct notion of their aboriginal condition. My final conclusion is, that no grounds exist for believing that they were ever anything more than a race of barbarous uncultured shepherds before they came under the humanizing influence of their conquerors, and that there never existed any form of civilization in the basin of Lake Titicaca other than that introduced by the Yncas.

The tribes of the Chinchu-suyu and Quito regions are also treated of in my paper: all available information respecting their original condition has been collected together, and the elimination of Ynca elements has been attempted; but space will not admit of my dwelling on these points, and I pass on to the interesting tribes of the Peruvian coast.

The numerous valleys on the Peruvian coast, separated by sandy deserts of varying width, only required careful irrigation to render them capable of sustaining a large population. In these valleys we meet with a race of people who had made considerable advances in civilization, but who are quite distinct from the people of the Andes. They appear to have formed separate communities in the different valleys, each under a chief more or less independent. The most civilized and powerful was the Chimú, who ruled over the valley where the city of Truxillo now stands. The subjects of this prince were civilized, and his vast palaces, near the sea-shore, now form extensive ruins. The system of irrigation of the Chimú Indians was most efficient, and they had made considerable advances in the arts. But the Ynca conquest had almost obliterated the names and traditions of these coast tribes, even before the arrival of the Spaniards, and nearly all the names of places belong to the Quichua language. The fragments of the coast languages that have been preserved prove that the people were wholly unconnected with the Yncas and other mountaineers. Their languages are entirely distinct, both as regards vocabulary and grammatical construction.

This difference of language proves that the coast Indians did not, like their conquerors the Yncas, descend from the region of the Andes into the warm valleys. I have given detailed reasons, in my paper, for thinking that they were not the aboriginal inhabitants of the coast. Two alternatives remain. They either came from the north, and were offshoots from the gold workers and lapidaries of the Quito sea-board, or they arrived from beyond seas. We can form no opinion on the former possibility without a comparison with the languages of the northern tribes. There remains the other suggestion, that they arrived from across the Pacific Ocean: and the Indians of Lambayeque gave a full account to the Spanish conquerors of the arrival of their ancestors in a large fleet, with a green stone idol. The coast Indians have now almost entirely disappeared. Their languages are disappearing, the most important have ceased to be spoken; but their civilization is attested by several old writers, and is illustrated by ruins and by many works of art. They are the most mysterious as regards their origin, and in that respect the most interesting of all the tribes which formed the great empire of the Yncas.

It will be seen that these numerous tribes resolve themselves into

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two primary divisions, distinguished by a complete difference of language, sufficient to establish an entirely separate origin. These are the people of the four Andean regions, and the tribes of the coast. Their languages, when carefully studied, give us an insight into the original condition of the different tribes, and, with the aid of evidence collected from the earliest writers, we are thus enabled to resolve the great Ynca empire into its elements, and to classify its component parts.

It remains to notice the sixth division of the empire of the Yncas, which embraced a portion of the vast Amazonian basin. It was a part of the wise and enlightened policy of the Yncas to send colonies from the Andes into the great forests to the eastward, in order that there might be an interchange of products between the emigrants and their friends at home, and a consequent increase to their material comfort and well being. Great warlike expeditions were also despatched into those interminable forests. One of these, described by Garcilasso, is certainly historical. The Ynca Yupanqui, about a century and a half before the Spanish conquest, sent a large army in a flotilla down the rivers Amaru-mayu and Beni, and established an Ynca colony in the province of the Moxos or Musus. Some of the tribes conquered by the Yncas, also, unable to endure a life of subjection, fled from their mountain homes into the eastern forests; as in the case of the Chancas, who emigrated from the lofty plateaux near Guamanga into the valley of the Huallaga. These several causes led to the establishment of many colonies from the Andes in the basin of the Amazons; and Velasco enumerates a number of important tribes, especially on the Ucayali and upper Amazon, as having been of Ynca origin.

Thus the tribes of the Ynca empire moved down the slopes of the eastern Andes, and penetrated down some of the affluents of the Amazons. Here they encountered the tribes of the great Tupi family, and the limits where one race begins and the other ends cannot now be exactly traced. The subsequent disintegration of the nations in the Amazonian basin has obliterated old landmarks, and led to the disappearance and change of names and languages; so that it is no longer possible to identify the descendants of the Andean emigrants.

The Yncas understood the inexhaustible wealth of the eastern forests, and the value of the rivers as a means of communication; and the wise measures they adopted secured all the benefits that their resources rendered possible from those rich and prolific regions. The mighty Andes, with their snow-capped peaks, the thousand rivers issuing from their sides, and the teeming forests remain the same for ever. But great changes have come over their inhabitants since those early efforts were made. The imperial Yncas have passed away; and, though strange vicissitudes and terrible calamities have pressed upon their descendants, there they still are, peopling the plateaux and slopes of the Andes, and, in these days, looking more than ever to the eastern forests and the mighty rivers for an interchange of products; and above all for the readiest means of communication with the outer world.

The Yncas did not dream that the rivers dashing down from their mountains into the dark forests of Anti-suyu, led to an ocean whence the arts and products of the whole world might be brought to their doors. Their descendants have dreamt this through many years, and now the dream is about to become a reality. The people of Peru, of Bolivia, and of Ecuador, see, in the mighty Amazon and her tributaries, a means of saving the ruinous land-carriage to the Pacific coast, and of turning Cape Horn by a flank march. The way is no longer through interminable forests, where no help can be found nor hoped for. Now a civilized empire extends over all the mouths and

lower courses of the rivers flowing from the land of the Yncas ; and the enlightened policy of Brazil now does more than help,—it takes the lead in opening the way from the Andes to the Atlantic, and from the Atlantic to the Andes, for the commerce of the world. The efforts of the last twenty years, and those now being made, while opening these great fluvial highways, and thus cementing the friendship and increasing the wealth of the riverine nations, will also have the effect of solving the most interesting questions in South American geography. They will have a momentous influence on the future of the races which formed the empire of the Yncas ; and no time can be more auspicious than the present for a survey of the progress of the great work of exploration in the basin of the Amazons.

Few enterprises are more romantic than those of the first explorers of the mighty Amazons : the descent of the river by Orellana, the heart-stirring tale of the pirate Aguirre's cruise, the exploring voyage of Pedro de Texeira, the narrative of Acuña, the work of Condamine, and the labours of the missionaries. Yet thirty years ago less was known of the region through which the upper courses of the principal rivers flow, that rise in the Andes, than in the time of the Yncas. Since then the steady efforts of the Brazilian Government, with some assistance from Peru, and more recently from Bolivia, have done much to complete those explorations which are destined, in future years, to lead to such momentous results. In October, 1851, as is well known, the Treaty was signed between Brazil and Peru to promote the navigation of the Amazons. Ireneo de Souza received his privileges in 1852, and by the year 1857 the Brazilian Company had eight steamers running from the mouth of the Amazon to Nauta in Peru, with periodical service up the principal affluents ; while in 1867 a noble and generous Imperial Decree opened the rivers to the flags of all nations. The example of Brazil has led to attempts at emulation among the Spanish republics of the Andes, and, in Peru especially, several exploring expeditions in the valleys of the Huallaga, the Ucayali, and the Beni, have been undertaken with good results in recent years by Nyestrom, Maldonado, Raymondi, and more recently by a party led by Admiral Tucker of the Peruvian navy. Thus the whole course of the Ucayali, that great stream which drains the Ynca region, and its main feeders, has now been explored to within 360 miles of Lima. The Huallaga and Marañon are also well known. But the Beni, which drains the rich forest-covered hills and plains to the eastward of Cuzco, and those in part of Bolivia, is still little known ; while its exploration will result in the opening up of one of the richest countries in the world—the *montañas* of Cuzco, of Caravaya, of Pelechuco, and of Apolobamba. For years the course of the Amaru-mayu, or "serpent river," flowing east from Cuzco and draining the slopes of the eastern Andes in that latitude, was the most interesting and the most eagerly discussed geographical problem connected with Peru. It is true that the old Ynca Garcilasso had told us, nearly 300 years ago, that it flowed into the country of the Moxos, and was, therefore, a tributary of the Beni. Yet modern geographers chose to assume that the Amaru-mayu, or Madre de Dios, was a main source of the River Purus, and, guided by these authorities, I was fully under the impression that I was exploring the sources of the Purus, when I penetrated to the Madre de Dios in 1853, and down the valley of Sandia in 1860. In 1865, however, Mr. Chandless made that thorough exploration of the Purus, by which he nobly earned the Gold Medal of this Society, and proved that the Purus did not reach to the Andes, and that, consequently, the Madre de Dios was not one of its tribu-

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taries. He then expressed an opinion that the Madre de Dios was one of the sources of the Beni, but we had all forgotten that Garcilasso de la Vega had stated this as a fact 260 years before. Afterwards, in 1867, we received intelligence that an enterprising Peruvian, named Faustino Maldonado, had actually solved the problem, and confirmed the accuracy of the old Ynca chronicler, though at the cost of his life. He embarked in a canoe on the Madre de Dios, and was drowned in a rapid; but his surviving comrades continued the voyage and entered the great River Madeira, just as the Yncas had done four centuries earlier. If we had read our Garcilassos more carefully, and had relied upon the Ynca's accuracy, we should never have been led into these erroneous geographical guesses; and we must all now rejoice that it was reserved for one of the Ynca's countrymen to set us right, though at the cost of his life.

But these courageous attempts to explore the headwaters of the Madeira will not lead to practical results, unless the question of turning its rapids, and making the lower part of its course navigable, is grappled with and overcome. The Government of that great South American empire, which has now for many years made resolute and successful efforts to develop the resources and foster the trade of the Amazon valley, may well be trusted to continue this good work; and the Brazilians have already caused an elaborate survey, by M. Keller, to be made of the Madeira rapids.* Meanwhile the Bolivian Navigation Company has just sent out a small steamer, the *Explorador*, to act as a scout for an expedition about to sail from New York. She is to make the transit of the Madeira Rapids without being taken to pieces, by being rolled overland. She will then complete the exploration of all the chief affluents of the Madeira, including the Beni; will probably penetrate to within a hundred miles of Cuzco, the ancient capital of the Yncas; and will thus realize the dreams which have been indulged in, for many years, by some of the more enthusiastic inhabitants of that grand old city. Colonel Church, the Manager of the Bolivian Navigation Company, has been working indefatigably to complete the preparations for this important expedition, and for the construction of a railway round the Madeira Rapids; to which all true geographers must heartily wish success. While showing the way to the traders of Peru and Bolivia, the Company will be the means of promoting geographical exploration, and of completing our knowledge of a very important but hitherto little known part of South America.

Commerce is already treading close upon the heels of discovery; and Peruvian bark, hitherto shipped exclusively from ports of the Pacific, is now beginning to find its way to England, by the Amazon and Para. Señor Rada, and his young wife, were the first Bolivians to attempt this route, and their success, in 1868, has led others to follow in their wake. The brave enterprise of the Señora Rada reminds us that, if the mighty river is not entitled to the name of Amazons because the female warriors of Orellana are apocryphal, it yet may well have a name which will serve as a memorial of female heroism; for in no other region have the adventures of ladies been more wonderful, and in none has their endurance and courage been more signally displayed. There is nothing in romance

* *Madeira Rapids.* (18.)

Height of falls 26'4 to 0'98 feet.

Total height 272 feet.

Length of river in part containing rapid

Broken water 5000 to 328 feet.

Total broken water 64,505 feet.

229'38 miles

12'20 miles of broken water.

Difference between "low water and floods, 10 to 23 feet.

Already there are 4 steamers below the rapids.

Railway round the rapids (projected) 168 miles.

Above the rapids, 2 steamers of 150 tons building (to come out in pieces.)

3000 miles of navigable rivers above the rapids.

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to be compared with the tale of Inez de Atienza, and her voyage down the Marañón. Madame Godin, after all her companions had died of fatigue, pushed bravely on in her brother's boots, during nine days of wretchedness and nights of horror; until she reached a mission village of the Amazons, and effected her object—a junction with her husband. Finally, the young Señora Rada has been the pioneer of trade between Bolivia and England, by way of the great Brazilian river. If that river had a doubtful title to its name in the first instance, the heroic deeds of these brave ladies have assuredly made it most appropriate now, using the word in its best and most respectful sense.

Time will not permit that I should even touch upon other undertakings connected with the exploration of the Amazons and its tributaries, such as that of the Yavari, by the recent Boundary Commission, and others. In all these enterprises the Brazilian Government has taken the lead, and has shown an enlightened appreciation of the boundless capabilities of that great basin of the Amazons which Providence has blessed so wonderfully, and for which a bright future must surely be in store. The mind is almost bewildered in the endeavour to grasp within its compass a due conception of the stupendous proportions of that grand river, which flows so majestically through the most fertile of soils, and receives tributaries whose sources are thousands of miles distant from each other on either side. One naturally flies from the tension of intellect consequent on the study of its physical features, to dwell with pleasure on the picture of the great future which must be in store for the broad basin of the Amazons, when a constant flow of commerce will add fresh interest to its ceaseless tide. Nothing can be more likely to conduce to this consummation, than the thorough examination of those splendid navigable rivers which form its chief affluents, and some of the more important of which are still so little known to geographers. In no other part of the world is there a grander field for geographical discovery and research. In no other part will the labours of the explorer be more richly repaid. I may venture to add, that in no other country has a more enlightened and liberal spirit been fostered and encouraged by a Government than in that great Brazilian empire, the ruler of which is himself a geographer. We all hope that His Majesty may long be spared, and that it will be his high destiny to enrich his own subjects by opening a way to the Atlantic for those Andæan races, who are the descendants of the tribes which formed the empire of the Yncas.

The original and more detailed memoir of Mr. Markham will be published, entire, with Map, in the 'Journal,' Vol. xli.

Captain SHERARD OSBORN, after referring to a residence of some years on the eastern coast of South America, in what he called his "salad days," with Mr. Markham, bore testimony to that gentleman's zeal and enthusiasm in the cause of South American discovery, and said that the man who had carried the Cinchona plant from the western to the eastern hemisphere had done enough to make himself a name in the world. In looking at the map of South America he was struck by the sublime, yet simple, physical features which the continent of South America represented. To rightly appreciate this vast continent, a person must imagine himself in the home of the ancient Imperial race to whom Mr. Markham alluded, on the plateaux of that gigantic range whose culminating points rose twenty thousand feet above the sea, and which rose on both sides almost like a wall—that range running four thousand miles from north to south, from Tierra del Fuego to 10 degrees north of the equator. There, from the heights on which rested the great lake of Titicaca, was spread out beneath them, and looking eastward, a vast continent in the form of a triangle, comprising all the lands between the Andes and the Atlantic Ocean. Its area was twice the area of all Europe. In its centre, and facing you, rose a great irregular wedge-shaped block of land, the point towards you; that was the table-land of Brazil, estimated to be in itself of twice the extent of Russia in Europe. That wedge-shaped block separated tropical America from temperate and southern America. The northern plains were watered by the Amazon and the Orinoco, and those plains were calculated by Professor Mahlmann of Berlin, in Prince Adalbert's voyage, to be twelve times the area of Germany. The great plains to the south were

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watered by the La Plata, the Parana, and the Paraguay. Such were some of the grand physical features of South America. The magnificent plain to the north was described by a German philosopher as an "ocean of forest," extending from almost the top of the eastern crest of the Andes to the shores of the Atlantic. The rivers were manifestly intended by Providence, hereafter, as a means of intercommunication over the whole of that vast continent. Mr. Markham had pointed out what was being accomplished in this direction. Gradually and slowly communication was being opened up from the mouths of the Orinoco down to the mouths of the La Plata. The promotion of these objects offered an unlimited field for a future generation of geographers. He was sure the enlightened potentate who had honoured them with his presence would do all in his power to foster and to encourage a spirit of geographical discovery, not only for the interests of his own vast empire, but for the benefit of the world at large. He had only to refer to the enlightened edict of the Emperor of Brazil, by which the navigation of the Amazon was thrown open to all nations, as a proof of his Majesty's disposition. It was a fortunate circumstance that this portion of the South American continent, which was the most progressive, was also the nearest to Europe. Already forty thousand Germans were settled in the high lands in the southern portion of Brazil. There was room there for the redundant populations of Europe, to be filled up, not perhaps in our own time, but in our children's time. He had recently turned his attention to the industrial and commercial prosperity of Brazil, and he was astonished, not having touched the subject for many years, to observe the marked progress that had been made. He might remark that a line drawn from Lisbon to Cape San Roque, in Brazil, was not greater than a line from Ushant to New York, passing by Halifax. We felt quite close, now-a-days, to New York; and he saw no reason why, in the course of a few years, our relations with Brazil should not be developed to a similar extent. Looking back to the past history of that country, Englishmen might recollect with pride that it was our Raleighs, our Ansons, and our Drakes who brought us into communication with South America; and, looking forward to the future, he could not help thinking there might be men, not so remarkable for their warlike temperament and their Conquistador spirit, who would help to promote the intercourse between Brazil and Europe, and also the development of the whole of the South American continent.

Mr. GERSTENBERG said, in connection with the introduction of the Chinchona plant into India by Mr. Markham, great credit was also due to Earl Derby, who, when at the head of the India Office as Lord Stanley, gave every facility to those who brought the subject under his notice. Also, in reference to the opening up of the Amazon, it was right to remember that Baron Mauá, who had had the exclusive privilege of navigating the Amazon for forty years with his own vessels, had voluntarily and gratuitously given up his privilege. He might also mention, in connection with the examination of the Purus by Mr. Chandless, that by the treaty of Ildafonso, in 1771 or 1776, the limits between Peru and Brazil were determined by the course of the Purus. Since then the course of the Purus had been pushed to the westward many degrees; consequently, Peru had lost and Brazil had gained a large quantity of land. We had never heard how that had been settled. Next, with reference to the communication between the Atlantic and the Andes, he was far more sanguine than Captain Sherard Osborn as to the period at which it would be realized. At the present moment nothing seemed to be impossible, with the mechanical skill, the power of steam, and the enormous public credit, which distinguished the present century. Nor was he satisfied with the prospect simply of a communication between the Atlantic and the slopes of the Andes. Any communication which stopped short at the Andes would not solve the requirements of the age. The task of the future would be to connect the Atlantic with the Pacific, as the United States had done without great difficulty; and he thought the task was feasible, because in the immense chain of the Andes there was a break in Ecuador which might be crossed. It would be a great joy when Brazil would be enabled not only to go up by the water to the foot of the Andes, but to connect the Atlantic coast with the Pacific coast.

Mr. HOWARD said he could bear his testimony to the skill, energy, and enterprise which conducted to a successful termination the journey of Señor Rada, resulting in the opening up of the river on the frontiers of Brazil to the traffic in Bolivian bark, specimens of which were on the table, and were worth from three to four shillings a pound. Señor Rada had to traverse some of the worst roads in the world to establish himself in the forests of Eastern Bolivia, where he had to provide for the felling of the trees, varying from 120 to 150 feet in height. In this he was assisted by his lady, and the task, though difficult, was accomplished. They had to build boats, in order to transport the bales of bark, which were tied up in the skins of animals, down the River Beni to Pueblos. Here they had to abandon the course of the river for fear of the savages, and to build carts, in which they conveyed the bark 60 miles across to another river to the east, called Mamoré. They then had to provide larger boats, and to navigate the Mamoré until it joined the Madeira. There they had the assistance of a steamboat down the Madeira, and so by the Amazons to Liverpool. The course of the Madeira was full of rapids, and the journey down was full of peril and adventure. A second expedition with bark had just arrived, but on this occasion Señor Rada had not accompanied it.

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Mr. SEARLE wished to add his testimony to the services which had been rendered by the Emperor of Brazil. Previous to the opening of the river in 1867, he gave free passage to the Peruvian expedition, and he also granted the use of the arsenal at Para for the construction of two steamers. They must also recollect the services he had rendered to science by the assistance he gave to the expedition under Professor Agassiz, by placing a sloop of war at his disposal for the navigation of the Amazon. Mr. Markham had scarcely done justice to Peru. As long ago as 1865 the Peruvian Government had established a line of steamers, which had been regularly running from the Brazilian frontier to Yurimaguas, on the Huallaga.

Mr. BATES felt that anything he could say with regard to the River Amazon would be an old story. It was twelve years since he quitted South America, and eight years since the account of his adventures was published. He spent eleven years upon the river, wholly within the Brazilian territory. He was there long before steamers navigated those wonderful waters; therefore, he had to make his way by open boat, Indian-canoe, fishing-vessel, or the sailing schooners of the native traders. Afterwards, when steamers were established, he made many voyages by steamer. In that way he visited all the ins-and-outs, the nooks, creeks, and lakes of that magnificent labyrinth of waters. He ascended the river for a distance of 1800 miles from the sea. Nothing gave him a more exalted idea of the navigability of the Amazon than a voyage he once made by steamer, for a distance of 400 miles on the Upper Amazon. The voyage was made in the height of the dry season, when the waters were at their lowest, and yet, in the darkness of an equatorial night, the steamer sped along at the rate of ten or twelve knots an hour. So broad and so deep was the channel, that there was no fear of running aground on either side, and that at a distance of from 1400 to 1800 miles from the sea. On each side of the main channel there was a system of side channels, both to the north and to the south of the stream, sometimes connected with great lakes, 20, 30, and 50 miles in circumference, all deep enough for the navigation of large vessels, and having a habitable and fertile territory all round. The Brazilians called the Amazons the "Mediterranean of South America," and that was an apt and true expression; it was a Mediterranean of fresh water, with tracts of country on its banks capable of supporting a populous and wealthy nation. His investigations had little to do with the political and social questions which the paper had suggested; but it was impossible to avoid putting to oneself the question what was to become of that great country, and that great system of inland navigation. For a distance of 1900 miles, with an average breadth of 400 or 500 miles of river valley, the whole population did not exceed that of an ordinary agricultural county in England. Where was the population to come from to occupy this vast domain? That was one of the great questions of the future. He had faith in the future, and he believed this country would become the abode at some future day of a happy, civilised race of men.

The EARL OF DERBY said it was true he had been in South America; but it had never been his good fortune to set foot within the empire of Brazil. This he would say, that those who had not witnessed the scenery of the South American continent, did not know what the splendour, glory, and beauty of Nature could be. With the single exception of the United States, there was no territory comprised within a single geographical area and under one government which could compete in point of natural capability with the Brazilian empire. Although it was our interest and our duty to be upon good terms with all the nations of the world, if they would let us, yet there were peculiar reasons why a cordial understanding should exist between England and Brazil. The reason was this,—that each country possessed what the other wanted, and each wanted what the other possessed. We, with our limited area, had an enormous command of capital, and a supply of skilled labour which was practically without limit. On the other hand, Brazil had an enormous geographical area with vast undeveloped resources, and a scanty population with small capital. Therefore, on one side there was a State, whose natural function was to supply capital, and, on the other side, a State whose function it was to utilize the capital so supplied. On the one hand, a State whose economical destiny it was to produce raw material in continually increasing quantities; and, on the other hand, a state whose natural destiny it was to work up that raw material so supplied. More than that, it seemed to be our function to send out continually to one country or another, able, hardy, and energetic emigrants, whose destiny it was to mix with other nations, and to influence the future of the world. Brazil had an unlimited area to receive emigrants, and although, undoubtedly, tropical countries, as a rule, did not suit European constitutions, still, that was a rule to which there were many exceptions, and in Brazil was to be found almost every variety of climate. In past times there had been some diplomatic differences between the two States, connected with questions which were now for ever set at rest. But they were disposed of; and he knew no reason, political, social or economical, why the relations between the empire of Brazil and the British empire should not be of the most friendly and most cordial character. He heartily hoped and firmly believed that it would be so.

The PRESIDENT, in closing the proceedings, said the discussion furnished an instructive commentary on a doctrine he had frequently propounded: that geography, after all, was a thoroughly practical and utilitarian science. He had frequently remarked that the explorer of unknown regions must not be

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viewed in the light of a mere *dilettante* traveller, but as the pioneer of commerce and the herald of civilization. Such had been the case with regard to Brazil. He would not attempt to follow in detail the information which they had been receiving from so many sources with regard to the geography and economical wants of Brazil; he would merely draw attention to the vast area which they had been considering. The entire length of the Amazon from the coast to its source was 3500 miles, of which 3000 miles were navigable. Such a navigation truly deserved to be called the Mediterranean of South America. In conclusion, he begged to assure the Emperor of Brazil, in the name of the Meeting, that the Royal Geographical Society thoroughly sympathised in all his Majesty's efforts to promote geographical discovery; and that they heartily desired to co-operate with him in any measures which he might introduce for that purpose; sincerely hoping that what already had been so auspiciously commenced, might in the future be carried to its full development.

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